Battling the Japanese Beetle

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Keeping beautiful and healthy lawns, pastures, trees and gardens is hard enough when you have to battle the normal nuisances that Mother Nature sends our way. Too much rain, drought, and a host of different insects and diseases keep us constantly digging, spraying, and picking to keep our plants beautiful and productive. In the past few years many residents of Alabama have had to take on a foe like no other – the Japanese beetle.

The Japanese beetle was first discovered in the United States in Riverton, New Jersey in the summer of 1916. As its name implies, it originated in Japan and came into this county on plants shipped from overseas. It has spread rapidly across the nation with more than one-half of the continental United States reporting infestations from Maine to Florida, the Great Lake states, and westward to Oklahoma and Kansas. It feeds on more than 400 species of broad leaf plants that include ornamental plants, shrubs, vines, shade and fruit trees, garden, and row crops. The beetle grubs feed on plant roots – primarily turf (lawns, golf courses, parks and pastures) – and many other plants and crops. The Japanese beetle spreads at a rate of 5-10 miles per year.

According to the California Department of Food and Agriculture Plant Quarantine Manual, in July of 2004 the Alabama counties of Autauga, Chilton, Colbert, Cullman, Elmore, Fayette, Montgomery, and Walker were listed as infested with the Japanese beetle. Data from the National Agricultural Pest Information System shows that infestations are in Alabama from Lauderdale County down to Tuscaloosa County, and from Jackson County south to Montgomery, Lee, and Macon Counties. The only areas of the state not infested are the Black Belt and extreme south Alabama.

The Japanese beetle is brilliantly colored, oval, and less than 1/2 inch long (about the size of a dime). Its body is metallic green with coppery wings. Many people say it resembles a very small June bug. Its distinguishing characteristics are five tufts of white hairs projecting from under the wing covers on each side, and two patches of white hairs at the tip of the abdomen.

Photo by Coleen Vansant

Adults feed in the daytime from early June to Labor Day, eating leaves as well as flowers. The beetles eat the leaf tissue between the veins making the affected leaf look like lace. They are gregarious in nature and are often found feeding in masses on a few plants, allowing other nearby plants to remain un-infested. They can skeletonize the leaves of a host plant and damage mature fruit. Adults are good flyers and can easily go from plant to plant for feeding and into previously non-infested areas.

During feeding period, females stop eating the plants from time to time to burrow 2-3 inches into the ground and lay eggs. She repeats this cycle until 40-60 eggs have been laid. By midsummer, the eggs hatch and the young grubs begin to feed. Each grub is about an inch long. In late autumn, the grubs burrow 4-8 inches into the soil and remain inactive all winter. This insect spends about ten months of the year in the ground during the larval state. In early spring, the grubs return to the top and feed on roots until late spring, when they change into pupae. In about two weeks, the pupae become adult beetles and emerge from the ground. In Alabama and other southern states, this life cycle takes about a year. In northern states it takes up to two years. Newly infested areas commonly have very heavy infestations for the first four to six years.

Control – There are no quick fixes to get rid of the Japanese beetle. Scientists with the United States Department of Agriculture (USDA) recommend an integrated pest management (IPM) program that includes cultural, chemical, mechanical, and biological strategies.

Habitat Modification – Since the eggs and young grubs are very susceptible to dry soils, do not irrigate during the time the eggs and first larvae are developing. If natural rainfall occurs, this tactic will not work. You can also modify habitat by planting trees, shrubs, and plants to which the beetle is not attracted (see accompanying sidebar).

Hand picking – In areas where infestations are not severe or if adult beetles are only affecting individual species of plants, you can hand pick the beetles from the plant. They can be destroyed by putting them in a bucket of soapy water where they drown.

Photos by Coleen Vansant

Japanese beetles eat the leaf tissue between the veins making the affected leaf look like lace (above and right).

Natural Control – Several parasitic wasps, especially *Tiphia popilliavora* and *T. vernalis*, have been imported and are known to be established in several eastern states. Unfortunately, they do not seem to be reliable in reducing the Japanese beetle populations below damaging levels. The Tiphia wasp seems to be more effective in southern states.

Many species of birds eat adult beetles. Moles, shrews, and skunks feed on the insect in the grub stage.

Chemicals – Adults can be controlled by spraying susceptible plants with insecticides. Over-the-counter pesticides available for this include acephate (Orthese), carbaryl (Sevin), and several pyrethroids: bifenthrin, cyfluthrin, deltamethrin, lambda-cyhalothrin, permethrin, and others. Be sure to read the label and follow all of the manufacturer's application and safety directions. During heavy adult activity periods, you may have to spray every three to ten days. For grubs, granular products containing the active ingredients trichlorfon or carbaryl can be used. You can refer to Alabama Cooperative Extension System publication *ANR-500-B, Alabama Pest Management Handbook, Volume 2* for more recommendations on grub control in home lawns. A copy of this publication is available from your local Extension office.

Traps – Both easy and inexpensive, traps are a good way to reduce beetle populations and curtail the laying of eggs. Because traps actually attract more beetles than they capture, be sure not to put them near your garden or favorite plants. They should be placed at the borders of your property, away from plants they could damage. Traps are most effective when many of them are spread over an entire community. Again, keep in mind that they can attract thousands of beetles in a day and only a portion of them are actually caught. Sometimes traps in a home landscape can actually increase problems rather than reduce them. Be sure to keep them away from susceptible plants.

You can see maps, data, and other facts on Japanese beetles in Alabama by visiting: **www.ipmcenters.org/northcentral/jbeetle/Alabama.htm**. This will give you the site for Japanese Beetle Watch: Alabama.

Plants Resistant to Japanese Beetle

Ash	Hydrangea	Poplar
Boxwood	Juniper	Redbud
Burning bush	Lilac	Red maple
Cedar	Magnolia	Red oak
Clematis	Mulberry	Spruce
Dogwood	Northern red oak	Sweet gum
Forsythia	Pine	Yew
Holly (most all)		

For a more complete list of resistant plants visit:
www.ag.auburn.edu/landscape/STGOoctober00.html

Plants Susceptible to Japanese Beetle

Many fruit trees (apple, crab apple, plum, apricot, cherry, peach)	Rose
Birch	Rose of Sharon
Black walnut	Running beans
Corn	Sassafras
Crepe myrtle	Soybeans
Grape	Virginia creeper
Japanese maple	Willow
Okra	Zinnias
Pin oak	Perennial ryegrass (affected by larva)
	Tall fescues (affected by larva)

Resources:

http://www.pueblo.gsa.gov

http://www.ivyhall.district96.k12.il.us/4th/kkhp/1insects/japbeetle.html

http://www.ohioline.osu.edu/hyg-fact/2000/2504.html

http://www.ag.auburn.edu/landscape/STGOoctober00.html

http://www.ipmcenters.org/northcentral/jbeetle/

http://www.aces.edu/pubs/docs/A/ANR-1250/